

ABSTRACT

Received signal characteristics of multiple concurrently received channels are determined using an analytical approach for computation in lieu of the measurement based approach of the prior art. A receiving wireless transmit receive unit (WTRU) and method are provided for processing concurrent communication signals from a plurality of transmitting WTRUs that concurrently transmit successive data blocks in a plurality of K forward channels. The receiving WTRU preferably has a receiver configured to receive successive data blocks of K concurrent transmissions transmitted from the transmitting WTRUs on the respective K forward channels. A processor is configured to compute individual channel characteristics for each forward channel k based on the characteristics of data signals received on all K forward channel. The processor is preferably configured to successively compute instantaneous Signal to Interference Ratio values for each forward channel j ($iSIR_j$), for integers $j = 1$ to K , based on a cross correlation matrix of channel response characteristics of K concurrently received data blocks and to selectively compute an average value that is used for the computing the individual channel characteristics for the forward channel k. The individual channel characteristics are advantageously used for power control or for the processing of the data blocks received on the respective forward channels.